

Different types of Media & its impact in teaching and learning

Objectives: At the end of this lesson you shall be able to

- explain Instructional media and learning
- describe Integration of media in teaching learning sequence
- explain Instructional strategies
- state the terminologies and describe them.

Instructional media and learning

Technology helps in choosing appropriate methods, strategies and media for making instruction a congenial process, learning easier, faster and with a purpose and remember longer. All this leads to planned systematic use of media for learning. Thus teaching-learning modes and media gets the top priority in the instructional process. The information furnished below gives various learning media which helps to provide a variety of learning experiences.

Media for Learning

- Text books
- Supplementary books
- Reference books
- Magazines, Newspapers
- Documents, Clippings
- Duplicated materials
- Programmed materials
- Motion picture films
- T.V. Programmes
- Radio programmes
- Recordings (tape & disk)
- Flat pictures
- Drawings & paintings
- Slides
- Transparencies
- Film strips
- Micro films
- Stereographs
- Maps, globes
- Graphics, charts, diagrams
- Posters
- Cartoons
- Puppets
- Models, mockups

- Collection, specimens
- Flannel-board materials
- Chalkboard of materials
- Magnetic board materials
- Construction materials
- Drawing materials
- Display materials
- Multi-media kits

Media for Learning

How many of the above are essentially visual in nature?

How many involve the element of sound?

Which of them are combined chiefly of representational visual elements, sound plus visual representation in combination?

Which of them are elements from real things?

How many will be created by the instruction or trainees?

The above chart is titled Media for Learning, not Learning Aids or Audio Visual Aids. The nomenclature is intended to emphasise that these medias are basic essential ingredients for effective, dynamic instruction, rather than tacked-on aids to the process.

Instructional Media is an instructional input in the teaching-learning sequence. The instructional technology approach emphasises that media and learning experience of many kinds are used in various ways for different purposes in five phases of the teaching-learning sequence.

They are

- Introduction
- Development
- Organisation
- Summary
- Evaluation

General principles that apply to uses of media in each of the five stages just mentioned are

- No one medium is best for all purposes.
- Media use should be consistent with objectives.
- Users must be familiar with the content of media selected.
- Media must be appropriate for the mode of instruction.
- Media must fit trainee learning styles and capabilities.
- Media are neither good nor bad simply because they are concrete or abstract in nature.
- Media should be chosen objectively, rather than on the basis of personal preference or bias.
- Physical conditions, surrounding uses of media may affect significantly.

Integration of Media in the Teaching-Learning sequence

A further element of key importance in the process environment for the systematic instructional technology approach for instructing and learning involves integration of media in the teaching-learning sequence. We will now examine the five phases of the teaching-learning sequence and the function of media in each of the above five phases.

Introduction phase (motivational, exploratory), materials especially which raise questions, excites interest, provides interesting overview and which allows trainees to demonstrate their present knowledge or skill in the subject.

Development phase (goal setting, location and study of informational materials, individual and group work toward solution of problems) : Materials especially sought during the phase to provide essential data for answering questions as they arise.

Organisational phase (pooling of results of research and study; presentation and integration of findings) : Materials needed here to provide integrated review of studies to fill in gaps in understanding, to prepare for presentations of findings during the summary phase, which follows.

Summary phase (a series of unit culmination activities): Sometimes involves individual and committee presentations, visual display, dramatisations, discussions for the purpose of summarising major ideas, generalisation or principles developed through the study.

Evaluation phase (appraisal of results) : Conducted regularly, but especially necessary at the conclusion of a unit of study. Testing of trainees, evaluations of learning products, expressions of trainee opinions with regard to

the continuing value of various activities and approach used in the study; determinations of changes and improvements needed if a similar study is undertaken with another group; special attention to be used on non-verbal materials in evaluating understandings, appreciation, skills.

These five phases of the learning sequences are discussed in more detail in the lesson planning earlier. Here it is emphasised that the media is not to be considered as a separate aid or adjunct in the learning process, but an input in the learning strategy, to be integrated in the teaching-learning sequences.

Instructional Strategies

We have discussed this is training methods. We will also discuss in this chapter about various planning methods. The discussion will be incomplete without the integration of plans with tracks and strategies. Let us examine these aspects and link them with the theories of instruction.

Overall instructional strategies are the translation of philosophies or theories of instruction into a statement of the way in which instruction should be carried out in specific types of circumstances. Chapter 2 and Methods in chapter 3. Let us now examine some of the process of the learning forming part of the instructional strategies.

Model of Instruction decision

Reception learning also called information processing, is the process by which much of institutional learning takes place. Its main steps are

- Reception of information, concerning a general principle or rule and using specific examples as illustrations.
- Understanding of the general principle. This can be tested by tests requiring restatement of the principles or giving examples.
- Particularising is ability to infer a particular application from the general principle, tested by explaining how a general principle, applies in a particular instance or what general principle applies to the particular instance
- Acting is moving from the cognitive and symbol processing sphere to the spheres of action. It involves the use of the information received by reception, applying it to real problems.

Application of	in the light of	to determine
1 Philosophies and theories of instruction	<ul style="list-style-type: none"> Final objectives Target population Wider population 	Instructional strategies
2 Instructional strategies	<ul style="list-style-type: none"> Specific objectives Entry skills Resources and Constraints 	Instructional Plans (methods, sequencing)
3 Instructional plans	<ul style="list-style-type: none"> Content Enabling skills Skill & knowledge taxonomies 	Instructional tactics (each step for each lesson)
4 Instructional tactics	<ul style="list-style-type: none"> Actual practical exercises in applying them to specific learning-teaching problems 	Specific instructional exercises (in any medium)

Experience processing (or experiential learning) follows a reverse sequence.

- Acting in a particular instance. One carried out the action and then sees the effects. The effects may act as rewards/punishments as in operant conditioning or may simply supply information about cause-effect relationship that exists.
- Understanding the particular case, so that if the same set of circumstances reappeared, one could anticipate the effects. The person has learned the consequences of the action, thus has learned how to act in order to obtain his goals in this particular case.
- Generalising an issue from the particular instance to the understanding of the general principle under which the particular instance fails. This may require action over a range of instances before the general principle does not necessarily imply an ability to express it in a symbolic medium such as writing.
- Acting in a new circumstance, to which the principle applies and anticipating the effects of the action.

The two strategies that spring from these processes of learning would be an Expository strategy and would have the following steps.

Expository strategy

- Present information. This may be through explanation (symbol) or demonstration (practical).
- Test for reception, recall and understanding. Repeat or rehearse the message if it proves to be necessary.

- Present opportunities for practice for applying general principle to a range of examples. Test for correct application. Modify the quantity and difficulty of the examples as necessary, to ensure correct performance.
- Present opportunities for the application of the newly learned information to real situations and problems.

Discovery strategy

- Present opportunities to act (do) and observe the consequences of one's action.
- Test for understanding. This may be done by questioning or simply by observation of the reactions of the learner. Present further opportunities to act (do) if this proves necessary.
- Enter by questioning or by observing the further activities, test for the formation of the general principle underlying the cases presented. Present further actions until the general principle has been learned.
- Present opportunities for the application of the newly learned information to real situations and problems.

Variations

Thus we have continuity of discovery/expository strategies ranging from a totally free discovery to a totally controlled role learning.

Impromptu discovery	Unplanned learning - involved - use of library or resource centre
Free expository	Learner is free to choose from resource centre or library from broad goals that are fixed. (Bruner's approach)
Guided discovery	Objectives fixed. Learner guided to appropriate methods. (Gagne's approach)
Adaptively programmed discovery	Guidance and feedback correctly given on individual basis (Computer assisted learning systems).
Intrinsically programmed discovery	Guidance and feedback according to a Preplanned programmed, based on the typical learner (Programmed materials)
Inductive exposition	The teacher talks through discovery process. Reflecting lecturing.
Deductive exposition	The meaningful reception learning process (Ausubel) Mainly lectures.
Drill and practice	Rote reception learning: Instruction demonstrates what to do and provides practice. No conceptual understanding is necessary (memorisation)

Instructional Technology

Many methods have been discussed in Chapter - 3. Most strategy decisions depend on the test and control sub systems. These interact with the instructional process. The output is controlled normally by the strategic decision between norm-referenced and criterion referenced measures of evaluation. Do we compare trainees with each other or to a quantified standard or criterion of terminal performance? Another important strategy decision concerns what we should do if trainees fail to perform to required standard. Do we adopt the mastery learning strategy or the individual development strategy of output control? This later decision is closely bound to one's choice of instructional strategy. The mastery learning strategy is quite incompatible with the principles of free exploratory discovery (Bruner's) but quite compatible with guided discovery strategy (Gagne's). Finally about the control, we should decide as to who is to exercise the control over inputs. The teacher, the

learner, the mediated system or some combination of these. The decision interacts with instructional methods and media. Bruner advocated a free discovery approach whereas Skinner and Ausubel argues for an expositive guided discovery approach.

Education and Training must develop the learning skills of the learner and should make specific planned efforts to do so. In developing an instructional system aimed specially at the development of cognitive skills, one may select content which is particularly suitable as a vehicle for the development of these skills, but which has no special value to the learner as knowledge. It is therefore considered in the interest of proper development of trainees, that a combination of expositive and discovery strategies are used.

The strategy to be adopted depends on

- Whether you are dealing with information or performance?
- Whether, the knowledge is factual information, concepts, procedures or principles or combination?
- Whether the skill is basically a reproductive skill or a complex productive skill or a combination of these?
- What resources you have, what is the target population like and what are the special pressures that affect the trainees and the system as a whole.

Considering the restriction these constraints impose on your selection of specific instructional methods and select a method or several alternatives, that is (are) both appropriate and viable, in the light of the consideration outlined above.

Terminologies

We have used in various parts of this book, used terms instruction, instructional system, technology, objective, media, method, strategy, plan, tactic, exercises and process to describe various aspect of 'what the instruction will do during instruction'. It has now become necessary to recapitulate and discriminate the meanings described to these terms.

Instruction is a goal directed teaching process which is pre-planned. It is always necessary to identify the pre-determined goals and objectives.

Instructional system: The presence of precise goals and objectives and the presence of careful pre-planning and testing out shall be taken as the main characteristic of instructional system.

Instructional system design is a three phase process of establishing precise and useful objectives, planning viable routes to achieve the same and testing them out.

Instructional Technology is a term which has been used in so many contexts by many. It can mean in a sense any planned instructional activity incorporating innovative scientific principles. It is a set of principles

and procedures used to analyse instruction, design instruction, instruct and provide quality control. It is a system approach to instruction. It is a development process that utilises a variety of principles and techniques in order to develop instruction that achieves its objectives.

Instructional objective is the description of the form of the behaviour that instruction is to produce, state in terms of what the trainee (student) is to be able to do (explain, describe, discuss, solve, manipulate, etc.,) the conditions under which the action is taken and where appropriate, a standard of accuracy or speed. The behaviour described or its consequences should be observable and measurable.

Instructional Media: Media is the carrier of message from transmitting source to the receiver of the message (may be learner). Instructional Media are direct instructional inputs and essential ingredients in the teaching-learning process. They are not mere aids. All media taught are part of instruction.

Instructional Methods: This is a term used to mean, ways of doing something for the purpose of instructing. There are some commonly recognised methods of instruction, such as the lecture method, lesson method, the discussions method, the tutorial method, the demonstration method, etc. One can invent many methods of instructing depending on the situation and necessity. It is a decision making process and application of creativity.

Instructional Strategies are general view points and line of action that one adopts in order to choose the instructional methods. Decision of strategies are taken quite early in the instructional design process. A strategy which advocates, active participation of the learner in the lesson, will tend to minimise the use of the lecture method, wherein the learner is relatively passive and promote the choice of more learner active methods, such as group discussions and seminars, project work, tutorials and self-instructional packages. It is the mix of the methods for the particular objective resulting in differentiated strategy that ends up with a good instructional plan.

Instructional plans are the specific combinations of methods that one decides to adopt in a given course of instruction. The plan incorporates the different objectives for the necessary content, strategies and media.

Instructional Tactics are the specific ways that one chooses to implement a particular case. There is some problem of adopting tactics without knowing the styles of learning of the students/trainees. Methods are ways of getting the students to do a particular course by organising lessons or lectures, whereas tactics are detailed steps of instruction in a lesson. Instructor training is more concerned about tactics. Tactics must be matched to detailed objectives by means of some type of classification, taxonomy. The matching takes place at a time level and the lesson plan must specify in depth what will occur or should occur at each step of the

lesson. The instructional plans fail because the instructors have not learnt to match tactics to objectives or they are poor in specifying objectives and/or in lesson planning. It is a dangerous practice to have no lesson plan at all.

Instructional Exercises are the actual activities and events that occur when a particular tactic, or a set of tactics that make up a lesson, are put into practice. Thus the tactics suggested for the teaching of concrete concepts will give rise to quite a different concept to be taught. The choice of the examples, their sequencing, how many and so on, are all decisions that are made at the exercise design level. It is necessary to present example of a variety, then test with different examples, in order to measure the analysis and synthesis level. Exercises are what the learner gets involved with. He may never be conscious of the strategic planning and tactical decision that lie behind the actual exercises. But all those prior decisions are made in order to ensure that the learner does actually learn from the exercises. The success of instruction, depends on the measure of the success that the learner has with the exercise finally developed. The quality of instruction depends on the thorough or deep analysis of the learning elements, followed by the application of appropriate instructional tactics in efficient practical ways.

Instructional process is a very complicated one. In order to maximize the instructional outcome, the instructional process must be designed effectively. During the process, a trainee is faced with the learning situation from the various planning strategies and the environment, to exhibit different behaviours when the instruction is complete. This change in behaviour is measured by the test and control. In order to be successful, one should have answers to the following questions.

- What should be achieved? (desired outputs or objectives)
- With what? (inputs-content, learners, resources)
- In what context? (the environmental climate and constraints)
- When? (the sequence of events that should occur)
- How? (the strategies, methods and tactics that should be used)
- Who? (the structure and grouping to be used)
- With what? (media to be used)
- How well? (the tests and controls)

We will discuss in the following chapters in detail, the Analysis of knowledge and skills, sequencing, evaluation, planning for instruction and organisation of physical facilities and resources and management of training area.

A companion volume is planned which will deal in detail the function of Instructional Media and essential process of training-learning aids.